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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,617	01/23/2004	Larry C. Webb JR.	17310-293478	7274

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EXAMINER

PATEL, ISHWARBHAI B

ART UNIT	PAPER NUMBER
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2841

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/763,617

Applicant(s)

WEBB, LARRY C.

Examiner

Ishwar (I. B.) Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 2,4,12,14,19,21 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-11,13,15-18,20 and 22-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/23/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species:

Specie I	Figure 2.
Specie II	Figure 3.
Specie III	Figure 4.
Specie IV	Figure 5.

The species are independent or distinct because various embodiments constitute the species with different structural limitation.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, 1, 11 and 18 appears generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations

of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species.

MPEP § 809.02(a).

2. During a telephone conversation with Walter C. Linder (Reg. 31,707) on March 7, 2006 a provisional election was made without traverse to prosecute the invention of specie I, figure 2, claims 1-3, 5-13, 15-20 and 22-25. Affirmation of this election must be made by applicant in replying to this Office action. Claims 4, 14 and 21 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. Further, as claims 2, 12, 19 and 25, with the limitations "slots are generally parallel to the a longitudinal axis of the conductive traces" are not reading on the elected specie, which shows the slots non-parallel to the conductive traces, are withdrawn from further consideration.

Drawings

3. The drawings are objected to because the figures are improperly cross hatched. All of the parts shown in section, and only those parts, must be cross-hatched. The cross-hatching patterns should be selected from those shown on page 600-114/115 of the MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP § 608.02.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

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replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1 and 5-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Watanabe (US Patent No. 6,927,343).

Regarding claim 1, Watanabe, in figure 8, discloses a flexible electrical circuit, including: one or more electrically conductive traces (3); a dielectric layer (22) on a surface of at least one of the traces, the dielectric layer susceptible to thermal and/or hygroscopic-induced expansion and contraction; and slots (22b) in the dielectric layer oriented non-parallel to a longitudinal axis of the conductive traces, to reduce curling caused by thermal and/or hygroscopic-induced expansion and contraction of the dielectric layer.

Regarding claim 5, Watanabe, in figure 8, discloses the slots have a constant depth (see figure).

Regarding claim 6, Watanabe, in figure 8, discloses the slots have a constant pitch (see figure).

Regarding claim 7, Watanabe, in figure 8, discloses the slots are generally parallel to one another (see figure).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe as applied to claim 1 above, and further in view of Blazier (US Patent No. 5,903,440).

Regarding claim 3, Watanabe discloses all the features of the claimed invention including the slots, but does not disclose the slots extend only partially through the dielectric layer.

Blazier, in figure 2, discloses a circuit board with slot that extend partially through the dielectric layer to have the desired flexibility.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the board of Watanabe with the slot extending only partially through the dielectric layer, as taught by Blazier, in order to have the desired flexibility.

8. Claims 1 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matz (US Patent No. 5,924,187) in view of Watanabe (US Patent No. 6,927,343) and Blazier (US Patent No. 5,903,440).

Regarding claim 1, Matz, in figure 1-11 (to be specific in figure 4), discloses a flexible electrical circuit, including: one or more electrically conductive traces (40, 42, 44 and 46); a dielectric layer (cover coat, column 6, line 12-14) on a surface of at least one of the traces, the dielectric layer susceptible to thermal and/or hygroscopic-induced

expansion and contraction. Matz does not explicitly disclose slots in at least portions of the coverlay oriented non-parallel to a longitudinal axis of the traces. However, providing slots in the dielectric layer is old and known in the art to provide the desired flexibility in the board.

Blazier, in figure 2, discloses a circuit board with slot that extend partially through the dielectric layer to have the desired flexibility.

Watanabe, in figure 8, discloses a flexible electrical circuit with slots (22b) in the dielectric layer oriented non-parallel to a longitudinal axis of the conductive traces the cover layer having constant depth and pitch and are generally parallel to each other.

Therefore, it would have been obvious to provide the board of Matz with slots in at least portions of the coverlay oriented non-parallel to a longitudinal axis of the traces, as taught by Blazier and Watanabe, in order to have desired flexibility.

Regarding claim 8, the modified board of Matz further discloses a layer of material on a side of the traces opposite the dielectric layer (82, 80, see figure 11).

Regarding claim 9, the modified board of Matz further discloses the layer of material on the side of the traces opposite the dielectric layer is a layer of metal (80).

Regarding claim 10, the modified board of Matz further discloses the layer of material on the side of the traces opposite the dielectric layer is a layer of polymer (82).

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9. Claims 11, 13, 15-18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matz (US Patent No. 5,924,187) in view of Watanabe (US Patent No. 6,927,343) and Blazier (US Patent No. 5,903,440).

Regarding claim 11, Matz, in figure 1-11 (to be specific in figure 4), discloses an integrated lead flexure, including: a base layer (80); a plurality of elongated electrical traces (40, 42, 44 and 46) on the base layer; a dielectric coverlay (cover coat, column 6, line 12-14) over at least portions of the traces. Matz does not explicitly disclose slots in at least portions of the coverlay oriented non-parallel to a longitudinal axis of the traces. However, providing slots in the dielectric layer is old and known in the art to provide the desired flexibility in the board.

Blazier, in figure 2, discloses a circuit board with slot that extend partially through the dielectric layer to have the desired flexibility.

Watanabe, in figure 8, discloses a flexible electrical circuit with slots (22b) in the dielectric layer oriented non-parallel to a longitudinal axis of the conductive traces the cover layer having constant depth and pitch and are generally parallel to each other.

Therefore, it would have been obvious to provide the flexure of Matz with slots in at least portions of the coverlay oriented non-parallel to a longitudinal axis of the traces, as taught by Blazier and Watanabe, in order to have desired flexibility.

Regarding claim 18, Matz, in figure 1-11 (to be specific in figure 4), discloses an integrated lead flexure, including: a stainless steel layer (80); a plurality of elongated electrical traces (40, 42, 44 and 46) over the stainless steel layer; a dielectric insulating

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layer (82) between the stainless steel layer and the electrical traces; a dielectric coverlay (cover coat, column 6, line 12-14) over at least portions of the traces.

slots in at least portions of the coverlay oriented non-parallel to a longitudinal axis of the traces. Matz does not explicitly disclose slots in at least portions of the coverlay oriented non-parallel to a longitudinal axis of the traces. However, providing slots in the dielectric layer is old and known in the art to provide the desired flexibility in the board.

Blazier, in figure 2, discloses a circuit board with slot that extend partially through the dielectric layer to have the desired flexibility.

Watanabe, in figure 8, discloses a flexible electrical circuit with slots (22b) in the dielectric layer oriented non-parallel to a longitudinal axis of the conductive traces the cover layer having constant depth and pitch and are generally parallel to each other.

Therefore, it would have been obvious to provide the flexure of Matz with slots in at least portions of the coverlay oriented non-parallel to a longitudinal axis of the traces, as taught by Blazier and Watanabe, in order to have desired flexibility.

Regarding claim 13 and 20, the modified flexure of Matz further discloses the slots extend only partially through the coverlay (as shown by Blazier, as applied to claim 11 and 18 above).

Regarding claim 15 and 22, the modified flexure of Matz further discloses the slots have a constant depth (as disclosed by Watanabe, as applied to claim 11 and 18 above).

Regarding claim 16 and 23, the modified flexure of Matz further discloses the slots have a constant pitch (as disclosed by Watanabe, as applied to claim 11 and 18 above).

Regarding claim 17 and 24, the modified flexure of Matz further discloses the slots are generally parallel to one another (as disclosed by Watanabe, as applied to claim 11 and 18 above).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tsutsumi (US Patent No. 6,420,659) discloses a head suspension with a flexible board (7) with dielectric layers (11 and 14) on both sides of the conductive traces (13) with slots (21a and 21b) in dielectric layer.

Klesing (US Patent No. 6,822,168), in figure 1, discloses a flexible circuit board (10) with openings (28) in the dielectric layer.


Dennis (US Patent No. 5,253,415), in figure 1-3, discloses a flexible circuit with traces (32) and slots (24) in the dielectric layer 12.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272 1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IBP
August 6, 2006


ISHWAR PATEL
PRIMARY EXAMINER